STATE FOREST LAND
ENVIRONMENTAL CHECKLIST

Purpose of Checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decided whether an EIS is required.

Instructions for Applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can. *Questions in italics are supplemental to Ecology's standard environmental checklist. They have been added by the DNR to assist in the review of state forest land proposals. Adjacency and landscape/ watershed-administrative-unit (WAU) maps for this proposal are available on the DNR internet website at http://www.dnr.wa.gov under "SEPA Center." These maps may also be reviewed at the DNR regional office responsible for the proposal. This checklist is to be used for SEPA evaluation of state forest land activities.*

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later. *All of the questions are intended to address the complete proposal as described by your response to question A-11. The proposal acres in question A-11 may cover a larger area than the forest practice application acres, or the actual timber sale acres.*

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered " does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NON PROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer" and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable:

   Timber Sale Name: **Hello John** *Agreement #:* **30-084573**

2. Name of applicant: **Department of Natural Resources**

3. Address and phone number of applicant and contact person:
   Northwest Region
   919 North Township St.
   Sedro Woolley, WA 98284
   Contact Person: Laurie Bergvall
   Telephone: (360) 856-3500

4. Date checklist prepared: **08/27/09**

5. Agency requesting checklist:
   Department of Natural Resources

6. Proposed timing or schedule (including phasing, if applicable):

   a. *Auction Date:* **03/24/2010**
   b. *Planned contract end date (but may be extended):* **09/30/2011**
   c. *Phasing:* **Does not apply**

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Timber Sale

a. *Site preparation:* **Logging slash generated from this proposal may be piled, chipped, hauled away, or possibly burned to allow adequate planting spots upon completion of harvest. To be surveyed following harvest to assess need for chemical application.**

b. *Regeneration Method:* **Hand plant Douglas-fir and western redcedar at approximately 360- 400 stems/acre, tentatively scheduled for January 2013.**

c. *Vegetation Management:* **To be surveyed 3-5 years following planting to assess need for treatment.**

d. *Thinning:* **To be assessed 12-15 years following planting to verify need for PCT.**

Roads: **The WA-ML, WA-15, WA-18, WA-26, BK-ML, BK-06, and BK-0621 roads will continue to be used for future timber sales and forest management activities. Roads will have routine annual maintenance, which may include ditch and culvert cleanout and road grading as needed, complying with the approved RMAP 2800010L.**

Rock Pits and/or Sale: **The WA-1800, WA-19, and Nolte pits will continue to be used for future timber sale road construction and road maintenance activities. Onsite rock may be used for road construction, if rock sources are discovered along haul routes or within the sale area.**

Other: **Potential commercial firewood or other non-timber commercial forest products.**

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

☒ *303 (d) – listed water body in WAU:* ☒ *temp* ☐ *sediment* ☐ *completed TMDL (total maximum daily load):* **Cornell Creek, Gallop Creek, un-named creek ,see http://www.ecy.wa.gov/programs/wq/wqhome.html.**

☐ *Landscape plan:*
☒ *Watershed analysis:* **at NW Region Office, Warnick WAU- watershed analysis has been completed (March 1994)**
☐ *Interdisciplinary team (ID Team) report:*
☒ *Road design plan:* **at NW Region Office**
☐ *Wildlife report:*
☒ *Geotechnical report:* **at NW Region Office, Landslide Risk Analysis, Hello John Timber Sale- Unit 1, 10/20/09 J.Grizzel**
☒ *Other specialist report(s):* **at NW Region Office, Site Protection Plan**

☐ *Memorandum of understanding (sportsmen's groups, neighborhood associations, tribes, etc.):*
☐ *Rock pit plan:*
☒ *Other:* **Policy for Sustainable Forests, dated June 2006; Final Habitat Conservation Plan and Environmental Impact Statement, dated September 1997; State Soil Survey, dated 1992; available at the Northwest Region Office.**

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. **None.**

10. List any government approvals or permits that will be needed for your proposal, if known.

☐ *HPA* ☐ *Burning permit* ☐ *Shoreline permit* ☐ *Incidental take permit* ☒ *FPA #* _____ ☐ *Other:*

11. Give brief, complete description of our proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include specific information on project description.)

a. *Complete proposal description:* **The proposal area considered for this harvest activity is located on approximately 182 acres. In consideration of factors such as topographic breaks, age of adjacent stands, and area reduction for unstable slopes, RMZ's and leave tree areas, this proposal was reduced to a net 148 acres of Variable Retention Harvest (VRH). The proposal consists of two units and 3 acres of right-of-way harvest of western hemlock, Pacific silver fir, western redcedar, Douglas-fir, red alder, and cottonwood, approximately 67 years of age. (Harvest area was determined using hand traversing using a laser and compass). All streams have been traversed and typed according to the DNR Trust Forestland HCP Water Typing System and WAC 222-16-031.**

Unstable slopes 20 acres
RMZ area: 9.0 acres

Leave tree area: 4.63 acres
Right-of-Way 3.0 acres
Net Harvest Area: approximately 148 acres
Estimated volume: 4,100 mbf

b. *Timber stand description pre-harvest (include major timber species and origin date), type of harvest, overall unit objectives.*
The pre-harvest stand consists of natural second growth timber, primarily Douglas-fir, western hemlock, silver fir and western redcedar. The origin date is approximately 1942. The approximate stand composition is 37% western hemlock, 27% Douglas-fir, 20% silver fir, 10% western redcedar and 6% red alder and other hardwoods. Snags, large Douglas-fir and cedar stumps and down woody debris are attributes of this stand. An average DBH is 16-22 inches and stand height is approximately 80-110 feet.
The proposed sale area has an understory of huckleberry, salmonberry, elderberry, nettle, moss and sword fern. This information is taken from the DNR Forest Inventory System and onsite data collection during sale layout.

The proposed sale will require cable and shovel logging. (Approximately 33% shovel and 67% cable)
Objectives for this sale include generating revenue for the Common School and the State Forest-Transfer trust (03,01); maintaining or improving the biological productivity of the site, retain and enhance short and long-term forest structural diversity, minimize soil and water quality impacts; protect habitats and functions of typed waters; consider and mitigate aesthetic impacts to the Mt. Baker Scenic Highway, and meet or exceed requirements of the HCP, Policy for Sustainable Forests (June 2006), Warnick Watershed Analysis (1994) and Forest Practice Rules.

c. *Road activity summary. See also forest practice application (FPA) for maps and more details.*

Type of Activity	How many	Length (feet) (Estimated)	Acres (Subgrade) (Estimated)	Fish Barrier Removals (#)	Steepest Side Slope Road Crosses
Construction		12,369	4.49		90
Reconstruction		764		0	75
Abandonment		0	0	0	0
Temporary construction		3,543	1.35		90
Bridge Install/Replace	0	0			
Culvert Install/Replace (fish)	0				
Culvert Install/Replace (no fish)	47				

12. Location of proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist. *(See timber sale map available at DNR region office, and/or color landscape/WAU map on the DNR website http://www.dnr.wa.gov under "SEPA Center.")*

a. *Legal description*: **The proposed variable retention harvest (VRH) units are located in Sections 02, 03, 10 and 11 of Township 39 North, Range 06 East, Whatcom County. The Nolte pit is located in Section 20, Township 39 North, Range 06 East, Whatcom County.**

b. *Distance and direction from nearest town (include road names):* **From Maple Falls (located at Mile post 25.1 on Hwy. 542 east) continue east for approximately 5.9 miles, across the North Fork of the Nooksack, just after the bridge, take a right (south) onto Cornell Creek road. Travel approximately 0.3 miles to the white gate on your right (WA-ML). Travel up the mainline for approximately 1.48 miles to the sale area.**
Nolte Pit- from the junction of Silver Lake Road and State Route 542 in Maple Falls, follow SR 542 east 2.4 miles to the DNR BK-ML. There is a gate at the entrance to the BK-ML. Turn north (left) onto BK-ML and travel 0.6 miles to the BK-06. Turn west (left) and travel 2.2 miles to the pit.

c. *Identify the watershed administrative unit (WAU), the WAU Sub-basin(s), and acres. (See also landscape/WAU map on DNR website http://www.dnr.wa.gov under " SEPA Center.")*

WAU Name	WAU Acres	Proposal Acres		Sub-basin	Acres	Proposal Acres
Warnick	**14,373**	**148**		**Warnick**	**909**	**111.4**
				Wildcat creek	**1,071**	**36**
				Hedrick Creek	**1,349**	**0.6**

13. *Discuss any known future activities not associated with this proposal that may result in a cumulative change in the environment when combined with the past and current proposal(s). (See digital ortho-photos for WAU and adjacency maps on DNR website http://www.dnr.wa.gov under "SEPA Center" for a broader landscape perspective.)*

This proposal is located on the north slopes of Slide Mountain. DNR manages the majority of the western part of the Warnick WAU while federal and private land is managed in the far east portions of the WAU. The tables below refer to information taken from the State GIS database September 2, 2009.

Name of WAU	Acres	DNR Managed Acres	Private and Federally Managed Acres	Percent DNR Managed Land	Percent Private Managed Land	Proposal Acres
Warnick	**14,373**	**8,335**	**6039**	**58**	**42**	**148**

The table below reports recent timber harvest activity on Department lands within the Warnick WAU during the last seven years, as well as future planned timber harvests on Department lands. The same chart also reports recent past harvesting on private lands, but no attempt was made to predict future timber harvests on private land. The WAU map, created in September 2009, shows the location of DNR and private harvest activity.

NAME OF WAU	DNR ACRES EVEN-AGED HARVESTED IN LAST 7 YEARS	DNR ACRES UNEVEN-AGED HARVESTED IN LAST 7 YEARS	DNR EXPECTED HARVEST ACRES WITHIN NEXT YEAR	PRIVATE/ FEDERAL ACRES EVEN-AGED HARVESTED IN LAST 7 YEARS	PRIVATE/ FEDERAL ACRES UNEVEN-AGED HARVESTED IN LAST 7 YEARS
Warnick	**705**	**0**	**148***	**57**	**669**

***This acreage represents both proposed even and un-even aged harvest activities on state lands.**

The Department's Habitat Conservation Plan (HCP) outlines strategies to protect all Federally listed threatened and endangered species, and species that are in danger of being listed in the future, as well as uncommon habitat types found on forest lands in western Washington. HCP prescribed riparian buffers intended to protect salmon and trout habitat were applied to this proposal and will be applied to all future sales in the vicinity. Potentially significant adverse impacts to slope stability, streams, water quality, and wildlife habitat have been mitigated. The HCP identifies large, structurally unique trees and snags as uncommon habitats that need to be retained. Specific mitigation measures are generally discussed below and in more detail in the specific sections.

Earth: Timber sale boundaries and proposed roads have been established in stable areas only. Areas exhibiting signs of instability were removed from the proposal area. The combination of harvesting schedule and recommended yarding strategies will alleviate or minimize ground disturbance. MWMU's #8 and 9, in the Warnick Watershed, are present within the sale area. Road building will only occur in MWMU #9. There are no prescriptions for this MWMU. See B-1-d-5.

Surface and Ground Water: Type 4 streams have 100-foot (or greater) no-harvest RMZ buffers. RMZ's will serve to reduce potential for mass wasting, preserve fish habitat and maintain water quality. Contract language will prevent activities or the use of equipment that will pose a risk to soil compaction and will restrict during periods of wet weather reducing impact to water quality. Temporary structures that protect stream bank integrity will be utilized when shovel/cable yarding over type 5 streams. To mitigate water quality issues and erosion, roads will be surfaced with rock and have adequate drainage structures to maintain natural drainage patterns.

Wildlife: At least 8 trees/acre, greater than 10" DBH, including trees from the dominant crown class and largest diameter class will be left as wildlife and green trees. Clumped green trees are located throughout the sale area and scattered green trees are larger diameter Douglas-fir, silver fir, western redcedar and western hemlock. The site may be replanted within the first planting seasons following harvest. RMZs and areas excluded for slope stability will also maintain a diversity of habitat.

Planned land management activities in fiscal year 2010 within this WAU include road construction, one VRH harvest of approximately 148 acres (Hello John Timber Sale), RMAP activities, and silviculture activities. These activities will continue to follow the Forest Practices Rules, Policy for Sustainable Forests, Implementation Agreement, Incidental Take Permits, and the HCP. This will ensure that all aspects of the environment are adequately protected and serve to minimize the chance of adverse cumulative environmental impacts. No attempt was made to predict future timber harvests on private land.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (check one):

☐Flat, ☐Rolling, ☒Hilly, ☒Steep Slopes, ☐Mountainous, ☐Other:

1) *General description of the WAU or sub-basin(s) (landforms, climate, elevations, and forest vegetation zone).* **The Warnick WAU is defined by the North Fork Nooksack River and the northern slopes of Slide Mountain. It is comprised of mountainous forested slopes that drain into the middle portions of the North Fork Nooksack River. Characteristic aspects are northeast and northwest with elevations ranging from 450 to 4,900 feet. The climate is typical of western slopes of the Cascade Range with local influences from Mt. Baker and the Fraser River valley. Average annual rainfall is approximately 72 inches and varies from 60 to 110 inches. The forest vegetation zone is the west Cascade hemlock zone with the major timber type being Douglas-fir, western redcedar, western hemlock, and silver fir at low to mid altitudes and silver fir, western hemlock, mountain hemlock, and Alaska cedar at higher elevations. A hardwood component of bigleaf maple, red alder, black cottonwood, and paper birch is present at lower elevations. Unmanaged and managed mixed conifer/hardwood young forest stands (0 to 60 years) exist throughout the WAU while older remnants and isolated pockets of old-growth conifer species can be found at middle and higher elevations.**

2) *Identify any difference between the proposal location and the general description of the WAU or sub-basin(s).* **Elevation ranges between 1,700 and 3,100 feet. The sale area is underlain by Chuckanut Formation sedimentary bedrock, primarily from sandstone.**

b. What is the steepest slope on the site (approximate percent slope)? **110%**

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland. *Note: The following table is created from state soil survey data. It is a roll-up of general soils information for the soils found in the entire sale area. It is only one of several site assessment tools used in conjunction with actual site inspections for slope stability concerns or erosion potential. It can help indicate potential for shallow, rapid soil movement, but often does not represent deeper soil sub-strata. The actual soils conditions in the sale area may vary considerably based on land-form shapes, presence of erosive situations, and other factors. The state soil survey is a compilation of various surveys with different standards.*

State Soil Survey #	Soil Texture or Soil Complex Name	% Slope	Acres	Mass Wasting Potential	Erosion Potential
3896	GRAVELLY SILT LOAM	30-60	106	MEDIUM	MEDIUM
0125	V.GRAVELLY LOAM	60-90	23	HIGH	HIGH
7347	SHUKSAN-KULSHAN-ROCK OUTCROP-COMPLEX	50-80	12	No Data	No Data
5603	V.GRAVELLY LOAM	30-60	7	MEDIUM	MEDIUM

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

1) *Surface indications:* **Evidence of failures along the inner gorges of Type 4 streams.**

2) *Is there evidence of natural slope failures in the sub-basin(s)?*

☐*No* ☒*Yes, type of failures (shallow vs. deep-seated) and failure site characteristics:* **Yes, there are shallow failures in some of the inner gorges of streams within the sub-basins.**

3) *Are there slope failures in the sub-basin(s) associated with timber harvest activities or roads?*
☒*No* ☐*Yes, type of failures (shallow vs. deep-seated) and failure site characteristics:*
Associated management activity:

4) *Is the proposed site similar to sites where slope failures have occurred previously in the sub-basin(s)?*
☐*No* ☒*Yes, describe similarities between the conditions and activities on these sites:*
Spur road WA-1504 will be built in the vicinity of an existing old road grade failure. At this site, the existing road grade failed at the head of a steep (>70 percent) bedrock hollow. The failure resulted in a landslide/debris flow that traveled about 400 feet down a small, high-gradient incised channel. Sediment and debris deposition was confined to this channel. The failed road section is approximately 50 feet long and 20 feet deep and involved several hundred cubic yards of earth and debris. None of the road prism remains at the site. The proposal involves reconstructing the road (WA-1504) at this site.

5) *Describe any slope stability protection measures (including sale boundary location, road, and harvest system decisions) incorporated into this proposal.*
Boundary and road locations have been located on stable areas only and road construction has been minimized. Road building will occur within MWMU #9. MWMU #9 is described as Hillslopes ≤30 degrees; all slope forms; soils of various origins and thicknesses; landslide activity low to non-existent; much of the area is contained within old landslide debris from historic deep-seated failures; not differentiated according to sediment delivery because of absence of landslide hazard. There are no prescriptions for this MWMU. Road construction practices are appropriately designed for steep slopes, including full bench construction and frequent road drainage. Roads were designed to minimize stream crossings and keep ground-based yarding to acceptable limits, of an average of 400-500 feet or less and to access cable landing locations for areas requiring cable yarding. Cable yarding will achieve lead end suspension. Ground-based harvesting and yarding will be permitted within 400-500 feet of roads and forwarding trails, where slopes are less than 25%. Ground-based falling and yarding, and road construction and hauling may be restricted between November 1 and March 31.

As described in the Landslide Risk Analysis report prepared for this proposal:
"Site 1 – The road at this site was originally constructed using traditional cut-and-fill techniques. As a result, on-site or "native" material was excavated from the hillside and simply pushed over the slope to form the road prism. This resulted in an uncompacted and unstable road fill. This, combined with the seepage at the base of the fill described earlier, led to fill failure and landslide initiation.
Rather than reconstructing the road in its original location, the proposal involves realigning the road to avoid the failure site. This will require shifting the centerline of the road to the southwest and into the hillslope. As part of the proposal, the road will be full-bench and excavated material will be end-hauled to an off-site, stable location. Maximum cutslope height will be about 25 feet, but heights along most of the cutslope will be significantly less. Also, the well-drained nature of the soils, regolith, and underlying rock at the site suggest the cutslopes should be stable. Nevertheless, if seepage or unstable conditions are discovered during excavation, the base of the cutslope will be buttressed with large, quarried rock.

Site 2 - While slope gradients at this site are steep (70 to 80 percent), slope form is uniformly planar and soils appear well-drained. The planar slope form and well-drained soils mitigate the natural landslide hazard at the site. The planar slopes also limit the potential for landslide development since landslides on planar slopes tend to spread and thin as they move downslope rather than converge and grow. Furthermore, the presence of a well-defined bench at the base of the landslide scarp mitigates the potential for sediment and debris delivery to Wildcat Creek. The relatively short slope length of the scarp (<100 feet) also limits the capacity for landslide runout. The presence of the bench combined with the short scarp length makes sediment and debris delivery to public resources unlikely. Because both the landslide hazard and sediment/debris delivery potential are low, the only mitigation measure proposed at this site is to employ leading end suspension of logs during cable yarding operations.

Site 3 - The uncontrolled road drainage and settled/cracked road fill at this site combined with the road's location at the head of a long, steep, convergent slope elevates the potential for road failure and a resulting debris flow. The proposed construction involves reclaiming the settled/cracked fill material and correcting the road drainage. These actions will arguably reduce (as opposed to increase) landslide potential at the site given the current condition of the road.

Unstable fill will be reclaimed at the two locations where the outer edge of the road has settled and cracked. The total volume of material to be reclaimed is estimated at <30 cubic yards. This material will be transported and deposited in a stable location. Reclaiming the fill will reduce the road width, necessitating a minor realignment of the road into the hillslope.
As previously stated, the cutslopes at the site are comprised of colluvium and landslide debris; as a result, they are marginally stable, having experienced some small-scale ravel over the past several decades. Moving the road into the hillslope will increase cutslope height, potentially increasing the rate and/or magnitude of ravel. Most of the ravel that has occurred in the past has been coarse, cobble- and boulder-sized material that has deposited on the road surface. Where seepage or unstable conditions are encountered during excavation, the cutslope will be buttressed with large, quarried rock to reduce future ravel and other forms of mass wasting.
Part of the proposed construction involves reestablishing the ditchline and capturing, redirecting and relieving the seepage emanating from the cutslope onto the fillslope in a location that will not increase landslide potential. Two 18-inch ditch relief culverts will be installed just south and downgrade from where the seepage originates in the cutslope. The first is expected to capture most (and possibly all) of the water while the second will capture any remaining water.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.
Acreage of new permanent roads will be 4.49 acres. Acreage of new temporary roads will be 1.35 acres. Acreage of new landings will be 3.5 acres. Fill source will be native (bank run) materials.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.
Erosion could result from landing construction during periods of heavy rainfall or as a result of yarding during periods of saturation. Additionally, erosion could result if ditches and culverts are not properly installed and maintained during and after the harvest operation. Erosion could also occur if stream banks are damaged. Temporary structures that protect stream bank integrity are required for type 5 water crossings during yarding operations. Road use during unfavorable weather conditions may contribute to an increased potential for surface erosion.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? *Approximate percent of proposal in permanent road running surface (includes gravel roads):*
4.49 acres will be permanent gravel road running surface. Approximately 3 %.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:
(Include protection measures for minimizing compaction or rutting.)
To control road related erosion, road pioneering will generally not extend more than 500 feet beyond completed construction, culverts will be installed concurrently with construction of the road sub grade, and culvert outlets will not terminate on unprotected soils. Ditches will be excavated along roads to collect surface runoff, which will be discharged onto stable areas of the forest floor, or natural drainages through ditch outs and cross drain culverts. Exposed soils resulting from road construction will be re-vegetated. Roads will be crowned, ditched, cross-drained, surfaced with rock, and constructed according to Forest Practices standards. The combination of harvesting schedule and recommended yarding strategies will alleviate or minimize erosion. Ground-based yarding, mechanized falling, road construction, and hauling of forest products may be restricted to the dry times of the year. Contract and road plan provisions restrict operations during periods of unfavorable weather during any time of the year.

2. Air

a. What types of emissions to the air would result from the proposal (i.e., dust *from truck traffic, rock mining, crushing or hauling*, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.
No emissions are anticipated other than minor amounts of equipment exhaust and road dust created by truck traffic.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. **None**

c. Proposed measures to reduce or control emissions or other impacts to air, if any: **Dust abatement may be required on Cornell Creek road, while hauling.**

3. Water

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. *(See timber sale map available at DNR region office, or forest practice application base maps.)*

a) *Downstream water bodies:* **All streams within the proposal area are potential tributaries, via surface or subsurface flow to the North Fork Nooksack River.**

b) *Complete the following riparian & wetland management zone table:*

Wetland, Stream, Lake, Pond, or Saltwater Name (if any)	Water Type	Number (how many?)	Avg RMZ/WMZ Width in Feet (per side for streams)
Un-named stream	4	2	100
Un-named stream	5	7	N/A
Wildcat Creek	4	1	100+

c) *List RMZ/WMZ protection measures including silvicultural prescriptions, road-related RMZ/WMZ protection measures, and wind buffers.*

The type 4 streams will have 100 foot no entry RMZ's. No road construction will go through RMZ's. Conditions will be monitored during hauling to ensure ditchwater and road runoff will not enter or otherwise adversely affect water quality. Corrective action such as straw bales, silt fencing, rock-lined ditches and sediment traps will be installed/constructed if necessary.

2) Will the project require any work over, in, or adjacent to (within 200 feet) to the described waters? If yes, please describe and attach available plans.
☐*No* ☒*Yes (See RMZ/WMZ table above and timber sale map available at DNR region office.)*
Description (include culverts): **Harvesting will occur no closer than 100 feet to type 4 streams. Logs will have lead end suspension during cable yarding. Temporary structures that protect stream bank integrity are required for type 5 water crossings during yarding operations. There will be an equipment limitation zone of 30 feet adjacent to the type 5 streams within the harvest units.**

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.
No material will be placed in or dredged from surface waters or wetlands during the course of this proposal.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. *(Include diversions for fish-passage culvert installation.)*
☒*No* ☐*Yes, description:*

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.
☒*No* ☐*Yes, describe location:*

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.
☒*No* ☐*Yes, type and volume:*

7) *Does the sub-basin contain soils or terrain susceptible to surface erosion and/or mass wasting? What is the potential for eroded material to enter surface water?*
Yes, there are steep slopes and incised channels in the sub-basin in the WAU that may be susceptible to mass wasting. There is minimal potential for eroded material to enter surface water due to current road construction and forest harvest procedures.

8) *Is there evidence of changes to the channels in the WAU and sub-basin(s) due to surface erosion or mass wasting (accelerated aggradations, erosion, decrease in large organic debris (LOD), change in channel dimensions)?*
☐*No* ☒*Yes, describe changes and possible causes:*
There is evidence from state GIS data and aerial photos that show minor changes to the channels of some streams within the WAU, during peak flow events. There are shallow failures in some of the inner gorges of streams of the sub-basin due to inadequate drainage of old roads and railroad grades and most likely associated with 10-year storm events and peak flows. Changes in channel dimensions along the courses of Type 4 un-named streams indicate increased flows in the past. Type 4 streams in vicinity harvests show evidence of bank erosion and channel down cutting during seasonal storm events.

9) *Could this proposal affect water quality based on the answers to the questions 1-8 above?*

☐*No* ☒*Yes, explain:* **There should be little effect to stream water quality. Yarding strategies, riparian buffers, road design, and leave tree strategies will minimize any potential deliverability to typed waters. Steeper slopes with and without the potential for delivery have been evaluated for stability on a case by case basis, with slopes considered moderate or high risk removed from the proposed harvest area. Road construction, hauling, and ground-based harvesting operations may be restricted from November 1 to March 31 and are not permitted during unfavorable weather conditions at any time of the year, minimizing potential impacts from this proposal to water quality.**

10) *What are the approximate road miles per square mile in the **WAU**?*
Warnick WAU:2.0 mi/mi^2

Are you aware of areas where forest roads or road ditches intercept sub-surface flow and deliver surface water to streams, rather than back to the forest floor?
☒*No* ☐*Yes, describe:*
The percentage of roads carrying water is unknown.
The information below was taken from the DNR corporate WAU GIS data layer as of September 02, 2009.

11) *Is the proposal within a significant rain-on-snow (ROS) zone? If not, **STOP HERE** and go to question B-3-a-13 below. Use the **WAU** or sub-basin(s) for the ROS percentage questions below.*
☐*No* ☒*Yes, approximate percent of WAU in significant ROS zone.*
Warnick WAU: 52.4 %

12) *If the proposal is within the significant ROS zone, what is the approximate percentage of the **WAU** or sub-basin(s) within the significant ROS zone (all ownerships) that is (are) rated as hydrologically mature?*
Acres of hydrologically mature DNR forestland in SROS zone = 70.5%
Acres of hydrologically mature private forest in SROS zone are unknown.
This information was taken from the DNR corporate GIS layer as of September 02, 2009.

13) *Is there evidence of changes to channels associated with peak flows in the WAU or sub-basin(s)?*
☐*No* ☒*Yes, describe observations:* **See B.3.a.8.**

14) *Based on your answers to questions B-3-a-10 through B-3-a-13 above, describe whether and how this proposal, in combination with other past, current, or reasonably foreseeable proposals in the **WAU** and sub-basin(s), may contribute to a peak flow impact.*
This proposal will reduce the DNR owned percentage of the WAU that is hydrologically mature from 70.5% to 67.3%. Forest lands that are hydrologically mature minimize impacts of rain-on-snow events. As a result, surface runoff may peak sooner during storm events than in adjacent standing timber. The proposal is a variable retention harvest, therefore precipitation that is normally dissipated in the tree canopy will come in contact with the understory brush and forest litter covering the forest floor. As a result, surface run off may peak sooner during storm events than in neighboring stands of timber. It is not expected that this proposal will significantly increase peak flow impacts. Warnick WAU has assessed Rain-on-snow and peak flow sensitivity. As directed by Procedure 14-004-060 Assessing Hydrologic Maturity, hydrologic maturity will not be managed for in WAU or sub-basins.

15) *Is there water resource (public, domestic, agricultural, hatchery, etc.), or area of slope instability, downstream or downslope of the proposed activity that could be affected by changes in surface water amounts, quality, or movements as a result of this proposal?*
☒*No* ☐*Yes, possible impacts:*

16) *Based on your answers to questions B-3-a-10 through B-3-a-15 above, note any protection measures addressing possible peak flow/flooding impacts.*
The potential for stream flow increases are tempered by design of the proposed sale. Streams having perennial flow have been excluded from the timber sale. Those streams that are non-perennial are not expected to contribute to stream water quality degradation during or after harvest operations. Road construction, haul, and harvesting operations may be restricted during unfavorable precipitation conditions further reducing impact to water quality.

b. Ground *Water*:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.
Road cross drains may increase ground water recharge directly below culvert outlets.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.
Minor amounts of oil and other lubricants could be inadvertently spilled as a result of heavy equipment use. No lubricants will be disposed of on site.

3) *Is there a water resource use (public, domestic, agricultural, hatchery, etc.), or area of slope instability, downstream or down slope of the proposed activity that could be affected by changes in groundwater amounts, timing, or movements as a result this proposal?*
☒*No* ☐*Yes, describe:*

a) *Note protection measures, if any.* **Road locations were selected to minimize ground water interception.**

c. Water Runoff (including storm water):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.
Intercepted surface storm water from rain and snow melt, and intercepted ground water from road cut banks will be collected into roadside ditches and discharged onto stable areas of the forest floor, or into natural drainage areas through cross drain culverts and ditches. All discharged water associated with this proposal is tributary to the North Fork of the Nooksack River via streams and other typed waters.

2) Could waste materials enter ground or surface waters? If so, generally describe.
See B-3-b-2.
Erosion and mass wasting are unlikely, provided appropriate forest practices outlined in the timber sale contract are used during road construction and timber harvesting near all waters.

a) *Note protection measures, if any.*
Road building, hauling, and ground-based operations may be restricted during the wet season. Crowned and rock surfacing on all roads will reduce sediments from entering natural waters. Downspouts at culvert outlets are to be utilized on steeper side slopes. Timber will be felled to avoid stream bank disturbance on all typed streams. Temporary log crossings that protect stream bank integrity are required for type 5 water crossings during yarding operations. There will be an equipment limitation zone of 30 feet to the type 5 streams within the harvest unit.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:
(See surface and ground water sections above, questions B-3-a-1-c, B-3-a-16, B-3-b-3-a, and B-3-c-2-a.)

4. Plants

a. Check or circle types of vegetation found on the site:

☒deciduous tree: ☒alder, ☒maple, ☐aspen, ☒*cottonwood,* ☐*western larch,* ☐*birch,* ☐other:
☒evergreen tree: ☒*Douglas fir,* ☐*grand fir,* ☒*Pacific silver fir,* ☐*ponderosa pine,* ☐*lodgepole pine,* ☒*western hemlock,* ☐*mountain hemlock,* ☐*Englemann spruce,* ☐*Sitka spruce,* ☒*red cedar,* ☐*yellow cedar,* ☐other:
☒shrubs: ☒*huckleberry,* ☒*salmonberry,* ☒*salal,* ☐*other:*
☐grass
☐pasture
☐crop or grain
☒wet soil plants: ☐cattail, ☐buttercup, ☐bullrush, ☐skunk cabbage, ☒*devil's club,* ☐other:
☐water plants: ☐water lily, ☐eelgrass, ☐milfoil, ☐other:
☐other types of vegetation:
☐*plant communities of concern:*

b. What kind and amount of vegetation will be removed or altered? *(See answers to questions A-11-a, A-11-b, B-3-a-1-b and B-3-a-1-c. The following sub-questions merely supplement those answers.)*
Second-growth conifer and hardwoods will be removed. Some immature trees and snags may be left unless they need to be felled for safety or operational reasons. Associated under story vegetation will be disturbed by logging or road building activities within the sale boundary. The current stand will be replaced with a managed Douglas-fir and western redcedar stand (hand planted) along with naturally regenerated western hemlock, red alder, and bigleaf

maple. This managed regenerated stand will retain snags, dominant, co dominant and/or structurally unique trees from the current stand, increasing horizontal and vertical diversity over the landscape.

1) *Describe the species, age, and structural diversity of the timber types immediately adjacent to the removal area. (See landscape/WAU and adjacency maps on the DNR website at: http://www.dnr.wa.gov under "SEPA Center.")*
The proposed timber sale area is bordered on all sides by State manaaged lands. Mature timber approximately 67 years old separates the two units. 40-60 year old stands comprise the northwest, southeast, southwest, west and southern borders. A 5 and 10 year old stand comprise the eastern and northern borders.

2) *Retention tree plan:*
Retention trees (totaling approximately 785 trees in unit 1 and approximately 393 trees in unit 2), including trees from the dominant crown class and largest diameter class will be left as wildlife and green trees. Retention trees will be clumped (550 trees in unit 1, 194 in unit 2) and scattered (235 in unit 1, 199 in unit 2) throughout the harvest areas. Green trees will be retained to retain structural diversity for wildlife habitat and include structurally unique, wind firm trees from diameter classes averaging between 16 - 22 inches DBH. Trees from dominant and co-dominant crown classes provide some components of multi-layered canopy. Larger green tree clumps, and green tree clumps on the timber sale boundary have been utilized in order to retain snags and older, structurally unique trees. All snags (unless they need to be felled due to L&I safety considerations) are to be left.

c. List threatened or endangered *plant* species known to be on or near the site.
The DNR plant database indicates no known threatened or endangered plant species.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:
(See above 4.b.2). Native conifer species of similar site stock planted at approximately 360-400 trees per acre will be established throughout the proposal area upon completion of the harvest. Naturally regenerated western hemlock and red alder will also be managed with planted conifers.

5. Animal

a. Circle or check any birds animals *or unique habitats* which have been observed on or near the site or are known to be on or near the site:

birds: ☐hawk, ☐heron, ☐eagle, ☒songbirds, ☐*pigeon*, ☐other:
mammals: ☒deer, ☒bear, ☐elk, ☐beaver, ☐other:
fish: ☐bass, ☐salmon, ☐trout, ☐herring, ☐shellfish, ☐other:
unique habitats: ☐*talus slopes*, ☐*caves*, ☐*cliffs*, ☐*oak woodlands*, ☐*balds*, ☐*mineral springs*

b. List any threatened or endangered species known to be on or near the site *(include federal- and state-listed species).*
The DNR animal database indicates no known threatened or endangered animal species.

c. Is the site part of a migration route? If so, explain.
☒*Pacific flyway* ☐*Other migration route:* *Explain if any boxes checked:*
Washington State is considered part of the Pacific Flyway. No impacts are expected.

d. Proposed measures to preserve or enhance wildlife, if any: **Riparian management zones and native conifer trees will serve as habitat for several bird and wildlife species.**

1) *Note existing or proposed protection measures, if any, for the complete proposal described in question A-11.*
See 4.b.2 above.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc. **Does not apply.**

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.
Does not apply.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:
Does not apply.

7. **Environmental Health**

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe. **There is minimal hazard for all of the above due to heavy equipment operations. There is a potential fire hazard if operating in moderate fire weather conditions during the summer until slash has broken down.**

1) Describe special emergency services that might be required.
During harvest operations there may be a short term need for: Department of Ecology approved contract Haz-Mat cleanup crews, rural fire district crews, DNR forest fire response crews and rural fire district EMT's and paramedics for responding to accidents or forest fires.

2) Proposed measures to reduce or control environmental health hazards, if any:
The timber sale contract contains language that addresses hazardous materials spill prevention; hazardous material spill containment, control and cleanup; hazardous material release reporting.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? **Noise from trucks and logging equipment will be present while operating during daylight hours.**

2) What types and levels of noise would be created by or associated with the project on a short-term or long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from this site.
There will be noise during daylight hours on a short-term basis from heavy equipment, log trucks, and chain saws during road construction and logging.

3) Proposed measures to reduce or control noise impacts, if any: **None.**

8. **Land and Shoreline Use**

a. What is the current use of the site and adjacent properties? *(Site includes the complete proposal, e.g. rock pits and access roads.)* **State managed commercial forestry land surrounds the proposal area.**

b. Has the site been used for agriculture? If so, describe. **No.**

c. Describe any structures on the site. **None.**

d. Will any structures be demolished? If so, what? **No.**

e. What is the current zoning classification of the site? **Commercial forestry.**

f. What is the current comprehensive plan designation of the site? **Commercial forestry and resource production.**

g. If applicable, what is the current shoreline master program designation of the site? **Does not apply.**

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify. **No.**

i. Approximately how many people would reside or work in the completed project? **Does not apply.**

j. Approximately how many people would the completed project displace? **Does not apply.**

k. Proposed measures to avoid or reduce displacement impacts, if any: **Does not apply.**

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:
The design of this project is consistent with current comprehensive plans and zoning regulations.

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.
Does not apply.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.
Does not apply.

c. Proposed measures to reduce or control housing impacts, if any:
Does not apply.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principle exterior building material(s) proposed? **Does not apply.**

b. What views in the immediate vicinity would be altered or obstructed?

1) *Is this proposal visible from a residential area, town, city, developed recreation site, or a scenic vista?*
☒*No* ☐*Yes, viewing location:*

2) *Is this proposal visible from a major transportation or designated scenic corridor (county road, state or interstate highway, US route, river, or Columbia Gorge SMA)?*
☐*No* ☒*Yes, scenic corridor name:* **Mount Baker Scenic Highway.**

3) *How will this proposal affect any views described in 1) or 2) above?*
The proposal will remove timber located south of the North Fork of the Nooksack River; views in this area will be partially buffered by timber ranging from 5 years old to more than 60 years old. They will be impacted until the planted conifer stand becomes established.

c. Proposed measures to reduce or control aesthetic impacts, if any:
Potential aesthetic impacts from timber harvesting are blended by RMZ's, scattered leave trees, and leave tree areas located throughout the sale area. Replanting with Douglas-fir and western redcedar at 360-400 stems/acre within two years after harvest will also help to reduce aesthetic impacts.

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?
Does not apply.

b. Could light or glare from the finished project be a safety hazard or interfere with views?
Does not apply.

c. What existing off-site sources of light or glare may affect your proposal?
Does not apply.

d. Proposed measures to reduce or control light and glare impacts, if any:
Does not apply.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?
Hunting, hiking, horseback riding, mushroom gathering, and berry picking.

b. Would the proposed project displace any existing recreational uses? If so, describe:
No.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any: **None.**

13. Historic and Cultural Preservation

a. Are there any places or objects listed on, or proposed for national, state, or local preservation registers known to be on or next to the site? If so, generally describe. **None known.**

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site. **Two historical logging camps were discovered upon sale layout. One located in each of the two units.**

c. Proposed measures to reduce or control impacts, if any: *(Include all meetings or consultations with tribes, archaeologists, anthropologists or other authorities.)*
DNR representatives have provided information and maps to the Lummi and Nooksack tribes regarding this proposal. Local and national preservation registers, Forest Practices, and DNR TRAX runs indicate no known historical or archeological sites on or near the proposal.

A DNR Archaeologist, in consultation with the Department of Archaeology and Historic Preservation, prepared a site protection plan for each of the two logging camps. Equipment will not be permitted within 25' of the camp locations and trees will be felled and yarded away from the logging camp sites.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any. **Access for sale area is via the DNR WA-ML (Warnick Creek Main line). Access for rock pit is via the BM-ML (Black Mountain Main line). See A.12.b.**

1) *Is it likely that this proposal will contribute to an existing safety, noise, dust, maintenance, or other transportation impact problem(s)?* **No**

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?
Does not apply.

c. How many parking spaces would the completed project have? How many would the project eliminate?
Does not apply.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private). **Does not apply.**

1) *How does this proposal impact the overall transportation system/circulation in the surrounding area, if at all?*
There will be increased truck traffic for rock hauling during road construction and timber hauling during the timber harvest period.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.
No

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.
An average of 10-15 roundtrip truck loads each day during road construction and harvest operation. Peak volumes will be during logging activities.

g. Proposed measures to reduce or control transportation impacts, if any:
Safe operation of vehicles will be encouraged.

15. Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe. **See 7.a.1.**

b. Proposed measures to reduce or control direct impacts on public services, if any.
Restrict access during periods of extreme fire hazard. Operations will cease during periods of extremely low humidity (less than 30%).

16. Utilities

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.
Does not apply.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.
Does not apply.

C. **SIGNATURE**

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Completed by: _____ FORESTER Date: 10-23-09
Title